E. B. BLISS.

LOOM.

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1,160,132. Patented Nov. 16, 1915.

Fig. 1

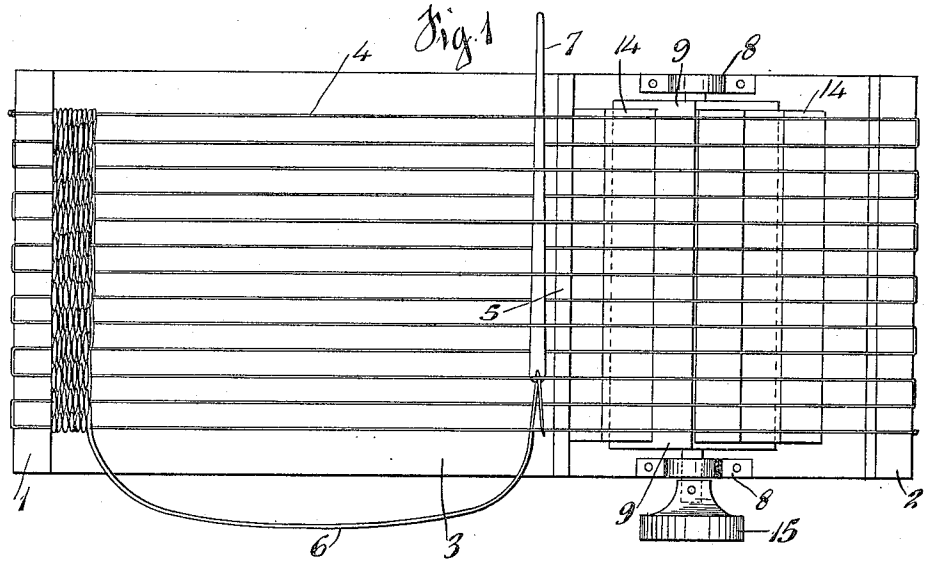
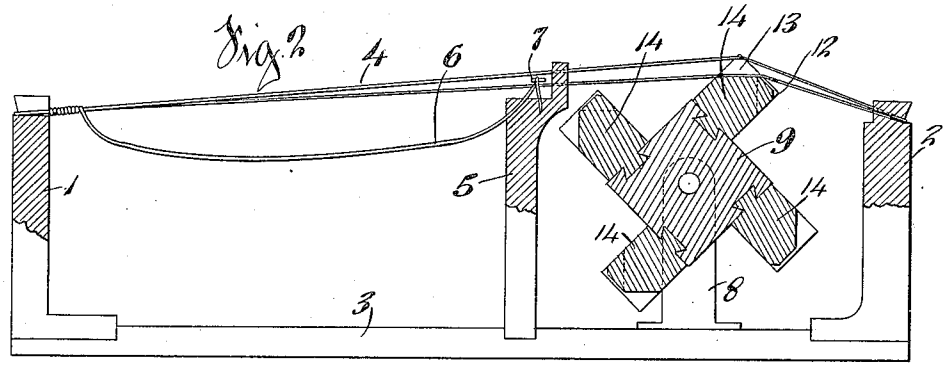


Fig. 2



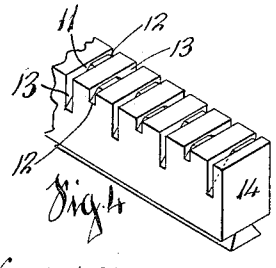


Fig. 4

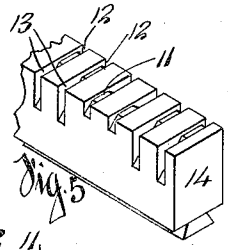


Fig. 5

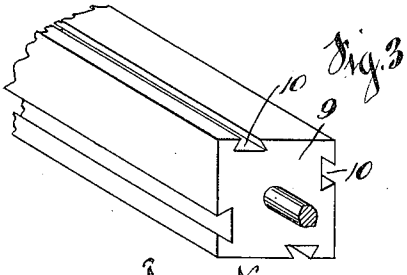


Fig. 3

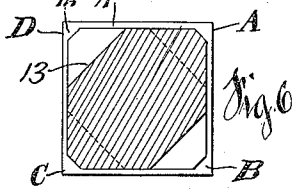


Fig. 6

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LOOM.

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To all whom it may concern:

Be it known that I, EMILY B. BLISS, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Looms, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to hand school looms in particular, although it would be readily possible, as will be pointed out, to apply my invention to regulation looms of varying types. The small hand looms used in manual training have become a familiar type of weaving apparatus of late years, and it will be understood that the form shown for applying my invention is to a very simple loom, designed for use by children.

In simple weaving, the warp threads are stretched between two warp holders, and a number of different cut heddles provided to form the proper shed for pattern weaving. Each heddle has alternate shallow or deep slots, and is to be turned over to present the opposite arrangement of slots so as to accommodate the movement to and fro of the shuttle.

My device has as its object the providing of a rotary heddle, which has on it or mountable on it, slotted means for providing reversible sheds in a plurality of different forms.

This I accomplish by that certain arrangement of parts to be hereinafter more specifically pointed out and claimed, and its various advantages noted.

In the drawings, Figure 1 is a top plan view of the loom. Fig. 2 is a longitudinal vertical section thereof. Fig. 3 is a perspective view of a portion of the rotary heddle mounting bar. Figs. 4 and 5 are perspective views of two forms of heddle adapted to be mounted thereon. Fig. 6 is a vertical sectional view of a rotary bar that has the heddle cuts formed in its corners.

The warp holders 1 and 2 are mounted on a suitable base 3, and have stretched from one to the other the warp threads 4. A warp support 5 is provided, mounted on the base 3, and the threads of the warp are passed through suitable slots therein, although the warp support may be omitted if desired, owing to the fact that my heddle is likewise mounted on the base and will sufficiently hold up the threads of the warp.

The weft thread 6 is secured to a shuttle 7, and the shuttle is, of course, adapted to be passed through the warp, in a shed to be formed as will be described.

Mounted in standards 8, 8, at each side of the base plate is a rotary bar 9, having a handle 15. This bar in one form of my invention has near each corner the dove-tailed grooves 10, 10, so that if the bar is square, as shown for purposes of illustration, there will be four of these grooves. Heddle strips 14 are provided having slots 11 cut in them. In these slots are formed the shallow cuts 12 and the deep cuts 13, which form the shed for weaving. In Fig. 4, for example, the slots 11, having at one side a deep cut 13 and at the other a shallow cut 12, are arranged in simple alternate order, so that if first one corner and then the other is turned so as to press on the threads of the warp, a shed will be formed between alternate threads, this shed reversed for each movement to and fro of the shuttle by a slight movement of the rotary member.

In the heddle bar in Fig. 5, however, the cuts are arranged so as to form a shed having two threads up and two down, instead of one up and one down as in the simple form. The heddle strips or bars are formed with mortises to slide into the grooves formed in the rotary bar, and as in the example shown, there may be four of these heddles set into the bar, it being understood that in a larger device having a larger rotary bar, there could be many more of them employed at one time. It is also obvious that if, during the weaving of a simple pattern, it should be desired to insert additional heddles, this may be easily done by merely sliding out those that are in the rotary bar and inserting others, which are supplied with the device.

For elementary weaving the slots 11, with the cuts 12 and 13, may be formed directly on the rotary bar. On one square bar, it will be possible to provide for two forms of shed. In the bar shown in Fig. 6 for example, the corners A and B will be direct and reverse for a simple alternate up and down shed, and the corners C and D will be the two up and one down shed.

The rotary member is so mounted that it will press upon the threads of the warp, and

thus a turning of the said member in either of the forms shown will press up the threads to form the top of the shed, and allow the bottom threads to rest in the deeper cut slots. The trouble of inserting a new heddle in the warp of a loom is done away with because the threads are naturally guided from one pattern of heddle to the next, just as simply as is the case with the simple heddle of the arts in reversing the shed.

It can be readily appreciated that in a large loom for commercial purposes, my invention could be employed to great advantage in simple weaving. On a large rotary member a considerable number of changes of shed could be provided for, without any further modification of parts than a mere enlargement of those shown in the present drawings.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a loom, means for mounting the threads for the warp, a rotary member therefor, and means for forming a plurality of sheds containing a different arrangement of warps on the rotary member.

2. In a loom, means for mounting the threads for the warp, a rotary member for said loom, a series of heddles for forming sheds of a diversity of arrangement of warps on said heddles, and means for demountably securing any desired heddle to the rotary member, for the purpose described.

3. In a loom, means for mounting the threads for the warp, a rotary member for said loom, a series of heddles for forming sheds of a diversity of arrangement of warps on said heddles, a plurality of grooves on the rotary member, and mortises on the heddles, whereby any desired heddles may be mounted on said member.

4. In a loom, means for mounting the threads for the warp, a rotary member mounted thereon, slots in the rotary member within which the threads of the warp are to be passed, and cuts formed at varied intervals in the slots, to form a plurality of sheds containing a different arrangement of warps on the rotary member.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."